

GSK-3 α (h2): 293T Lysate: sc-116382

BACKGROUND

Glycogen synthase kinase 3, or GSK-3, is a serine/threonine, proline-directed kinase involved in a diverse array of signaling pathways, including glycogen synthesis and cellular adhesion and has been implicated in Alzheimer's disease. Two forms of GSK-3, designated GSK-3 α and GSK-3 β , have been identified and differ in their subcellular localization. Tau, a microtubule-binding protein which serves to stabilize microtubules in growing axons, is found to be hyper-phosphorylated in paired helical filaments (PHF), the major fibrous component of neurofibrillary lesions associated with Alzheimer's disease. Hyperphosphorylation of Tau is thought to be the critical event leading to the assembly of PHF. Six Tau protein isoforms have been identified, all of which are phosphorylated by GSK-3. This presents the possibility that miscues in GSK-3 signaling contribute to the onset of Alzheimer's disease.

REFERENCES

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3. Hoshi, M., et al. 1995. Different localization of Tau protein kinase I/glycogen synthase kinase-3 β from glycogen synthase kinase-3 α in cerebellum mitochondria. *J. Biochem.* 118: 683-685.
4. Sperber, B.R., et al. 1995. Glycogen synthase kinase-3 β phosphorylates Tau protein at multiple sites in intact cells. *Neurosci. Lett.* 197: 149-153.
5. Rubinfeld, B., et al. 1996. Binding of GSK-3 β to the APC- β -catenin complex and regulation of complex assembly. *Science* 272: 1023-1026.
6. Black, M.M., et al. 1996. Tau is enriched on dynamic microtubules in the distal region of growing axons. *J. Neurosci.* 16: 3601-3619.
7. Singh, T.J., et al. 1996. Differential phosphorylation of human Tau isoforms containing three repeats by several protein kinases. *Arch. Biochem. Biophys.* 328: 43-50.
8. Hoshi, M., et al. 1996. Regulation of mitochondrial pyruvate dehydrogenase activity by Tau protein kinase I/glycogen synthase kinase-3 β in brain. *Proc. Natl. Acad. Sci. USA* 93: 2719-2723.

CHROMOSOMAL LOCATION

Genetic locus: GSK3A (human) mapping to 19q13.2.

PRODUCT

GSK-3 α (h2): 293T Lysate represents a lysate of human GSK-3 α transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20 $^{\circ}$ C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

GSK-3 α (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive GSK-3 α antibodies. Recommended use: 10-20 μ l per lane.

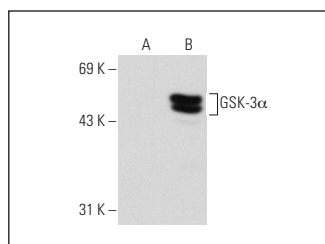
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

GSK-3 α (B-8): sc-166116 is recommended as a positive control antibody for Western Blot analysis of enhanced human GSK-3 α expression in GSK-3 α transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

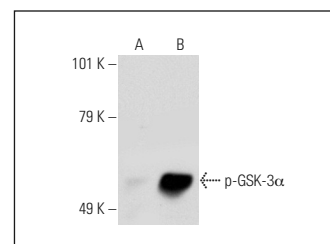
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



GSK-3 α (B-8): sc-166116. Western blot analysis of GSK-3 α expression in non-transfected: sc-117752 (A) and human GSK-3 α transfected: sc-116382 (B) 293T whole cell lysates.



p-GSK-3 α / β (6D3): sc-81496. Western blot analysis of GSK-3 α phosphorylation in non-transfected: sc-117752 (A) and human GSK-3 α transfected: sc-116382 (B) 293T whole cell lysates.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.